

Andres Perez

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EDUCATION

University of Notre Dame

Notre Dame, IN

Bachelor of Science in Computer Engineering | Minor: Engineering Corporate Practice | GPA: 3.7

May 2028

Activities: Irish Sat GOAT Lab, Robotics Football Club Electrical Team, Incoming Career Assistant (Fall 2025)

Engineering Study Abroad: London, England

May. 2025 – Jun. 2025

WORK EXPERIENCE

University of Notre Dame

Notre Dame, IN

Student Researcher

Aug. 2024 – Present

- Researched under Prof. Chaoli Wang by data labeling image data, downloading GSV data of households, and surveying heat dissipation in household.

ENGINEERING PROJECTS

Hardware-Accelerated Human Activity Classifier

Long Beach, CA

Developer

- Built a wireless data acquisition system using two Arduino Uno R3s, an MPU-9250 IMU sensor, and nRF24L01 RF transceivers.
- Developed a C++ sketch to sample raw accelerometer and gyroscope data, format it, and transmit it wirelessly to a receiving station. Along with a Python script to receive, parse, and log the real-time sensor data, generating a custom labeled dataset for human activities like walking and sitting.
- Trained a 1D Convolutional Neural Network in PyTorch to classify human activities (walking, sitting), achieving a peak validation accuracy of 96.7% on the test set.
- Visualized training and testing accuracy against learning rate, window size, and optimizer to demonstrate model stability and performance trends, documenting the findings.

IrishSat's Pi Hat PCB

Notre Dame, IN

Designer

- Designed a custom Arduino R3 hat PCB using KiCad to integrate and optimize Arduino, magnetometers, and H-bridge circuits, reducing assembly complexity.
- Amended the generated Bill of Materials and Component Placement List files export to JLCPCB for manufacturing.

Air Quality Sensor Housing | Engineering Design

Notre Dame, IN

Designer

- Collaborated with a team of four engineering students to develop and iterate on sensor housing with a rack-and-pinion opening mechanism actuated by a servo motor and ESP32-based microcontroller.
- Designed and prototyped with SolidWorks in two design phases, optimizing for form, fit, function, and durability through iterative testing and feedback.

Portfolio Website | andres-perez.github.io

Long Beach, CA

Developer

- Developed a portfolio website with Astro and Tailwind CSS frameworks as the front end.

LEADERSHIP AND ACTIVITIES

IrishSat's Gravitational Orbital Attitude Thermal Lab

Notre Dame, IN

Electronics Lead

Aug. 2024 – Present

- Appointed as incoming Electronics Lead to oversee embedded systems development and PCB design initiatives for the Helmholtz cage project, coordinating hardware-software integration efforts across the cubesat projects.
- Engineered a Python-based data acquisition pipeline for magnetometer readings from Arduino, converting raw serial outputs into MATLAB-compatible formats for post-processing and modeling
- Collaborated under expert mentorship to refine IrishSat's Helmholtz Cage design, integrating PCB design (KiCad), control algorithms (MATLAB), and embedded Linux systems (Raspberry Pi) into a unified testing platform.

TECHNICAL AND LANGUAGE SKILLS

Programming: C, C++, Python, Git, MATLAB, Astro

Tools: Microsoft Office Suite, KiCad, Vim, SolidWorks, Fusion 360

Skills: Technical Writing, Electronics Soldering

Language: English (Native), Spanish (Bilingual)

Hobbies: Japanese(N4-N5), Chess (1000+ Rapid)